IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Robert A. Cochran, et al.	Examiner: Matthew A. Bradley	
Serial No.:	10/798,962	Group Art Unit: 2187	
Filed:	March 12, 2004	Docket No.: 10019728-1	
Title:	Data Synchronization for Two Data Mirrors with Sidefiles		

REPLY APPEAL BRIEF UNDER 37 C.F.R. § 41.41

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Examiner's Answer mailed September 8, 2008, Appellants file this Reply Brief in accordance with 37 C.F.R. § 41.41.

AUTHORIZATION TO DEBIT ACCOUNT

It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's deposit account no. 08-2025.

In the Examiner Answer, the examiner cites portions from an overview of Iwamura and Carteau provided in the appeal brief. The examiner uses these citations to argue that using acknowledgements as part of a process for database recovery is not recited in the claims. Appellants respectfully disagree.

The claims are directed to apparatus and methods of redundant data storage that use data synchronization and acknowledgements. Writes to a primary storage are mirrored at both a first remote storage entity and a second remote storage entity. Acknowledgements form a foundation for redundantly storing data in the claims. By way of example, independent claims 28, 29, and 31 recites that acknowledgements and sequence numbers are compared to determine whether to update writes after a failure of the primary storage. Clearly, these claims are using acknowledgements for database recovery. Independent claims 1, 13, 30, and 32 use acknowledgements to update writes at the second storage entity. These claims are using acknowledgements to mirror and redundantly store data across various storage entities (i.e., primary, first, and second storage entities).

Additionally in the Examiner Answer, the examiner acknowledges Appellants' argument that Iwamura and Carteau do not teach or suggest comparing both acknowledgements and sequence numbers to update writes stored at the second remote storage entity. The examiner argues that Appellants are attacking the references individually and further argues that the combination of Iwamura and Carteau teaches using acknowledgements and sequence numbers as recited in the claims. Appellants respectfully disagree.

Even when the teachings of both Iwamura and Carteau are combined, this combination does not teach or even suggest using acknowledgements and sequence numbers as recited in the claims. In order to support this conclusion, Appellants discuss the teachings in Iwamuar and Carteau and the teachings in the combination of these references.

Iwamura uses logs stored in a log storage area to perform a rollback for database recovery. The logs and rollback are based on time. In Carteau, after a controller receives a write request from a host, the controller writes the request to a disk and transmits the

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request to the second controller. The second controller sends an acknowledgement to the first controller which then acknowledges the write to the host.

The combination of Iwamura and Carteua does not teach using acknowledgements and sequence numbers as recited in the claims. Even though Carteau mentions acknowledgements, Carteau **does not teach or suggest using these acknowledgements as part of a process that updates writes after a failure of the primary storage or updates writes at a second storage entity**. Iwamura is completely silent on using acknowledgements. Iwamura would use the acknowledgements in Carteau in a manner taught and suggested in Carteau. Specifically, one controller would send another controller an acknowledgement when a write to a host occurs.

The combination of Iwamura and Carteau would use acknowledgements but still not teach the recitations of the claims. Nowhere does Carteau teach or even suggest "comparing" acknowledgements. For example, claim 1 recites "comparing acknowledgements and sequence numbers in the first sidefile with acknowledgements and sequence numbers in the second sidefile." In other words, claim 1 recites comparing both acknowledgments and sequence numbers in one sidefile with acknowledgements and sequence numbers in a second sidefile. This comparison of both acknowledgements and sequence numbers is used to update writes stored at the second remote storage entity. Such a comparison of acknowledgements is not taught or even suggested in the combination of Iwamura and Carteau. As noted, both references are silent as to comparing acknowledgements for the purposes recited in the elements of the claims.

In view of the above, Appellants believe that all pending claims are in condition for allowance. Allowance of these claims is respectfully requested.

Respectfully submitted,

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